

CLAIMS

1. A bobbin case assembly comprising:

2 a wall structure mountable upon a support;

a bobbin for a supply of thread; and

4 a tensioning element for engaging thread projecting from a supply of thread
on the bobbin,

6 the tensioning element having a length and a circumferential surface
against which thread can be wrapped so that a frictional resistance force can be
8 generated between the thread and the circumferential surface that resists drawing
of thread off of the supply,

10 the tensioning element having a configuration that is capable of supporting
a controlled wave pattern of thread wrapped against the circumferential surface.

2. The bobbin case assembly according to claim 1 wherein the

2 tensioning element has an edge to which thread can abut to limit lengthwise
shifting of a portion of thread wrapped against the circumferential surface to

4 maintain the controlled wave pattern.

2 3. The bobbin case assembly according to claim 2 wherein the
tensioning element has an elongate body and the edge is defined by a bend in the
elongate body.

2 4. The bobbin case assembly according to claim 2 wherein the edge
is defined by a projection from the circumferential surface.

2 5. The bobbin case assembly according to claim 2 wherein the edge
is defined by an undercut in the circumferential surface.

2 6. The bobbin case assembly according to claim 2 wherein the
tensioning element has a body with a diameter, the body having a first diameter
portion and a second diameter portion and the edge is defined at a juncture
4 between the first diameter portion and the second diameter portion.

2 7. The bobbin case assembly according to claim 2 wherein the
tensioning element has a body and the body has an angled portion at which the
edge is defined.

2 8. The bobbin case assembly according to claim 2 wherein the edge
is defined by texturing the circumferential surface.

2 9. The bobbin case assembly according to claim 1 wherein the
tensioning element has a body, the circumferential surface is defined on a body
portion having a length with a diameter, a first end and a second end, and the
4 diameter of the body portion increases between the first end and the second end
so that a wave pattern of thread wrapped against the circumferential surface can
6 be limited against lengthwise shifting between the first and second ends of the
body portion.

2 10. The bobbin case assembly according to claim 1 wherein the
tensioning element has a plurality of edges to which thread can abut to maintain
the controlled wave pattern.

2 11. The bobbin case assembly according to claim 1 wherein the
tensioning element comprises discrete portions which can be bridged by thread
to maintain the controlled wave pattern.

12. The bobbin case assembly according to claim 11 wherein the
discrete portions are spaced and configured so that thread in the controlled wave
pattern is unsupported by the tensioning element between the discrete portions.

13. In combination:

a) a bobbin case assembly comprising:

a wall structure mountable upon a support;

a bobbin;

a supply of thread wrapped on the bobbin; and

a tensioning element having a length and a circumferential surface,

the thread extending from the supply and wrapped against the
circumferential surface so that a frictional resistance force is generated between
the thread and circumferential surface that resists drawing of the thread off of the
supply,

the tensioning element having a configuration that supports a controlled
wave pattern of thread wrapped against the circumferential surface; and

b) a thread drawing assembly for exerting a tension on the thread to draw
the thread from the supply.

2 14. The combination according to claim 13 wherein the tensioning
4 element has an edge to which the thread abuts to limit lengthwise shifting of a
portion of the thread wrapped against the circumferential surface to maintain the
controlled wave pattern.

2 15. The combination according to claim 14 wherein the tensioning
element has an elongate body and the edge is defined by a bend in the elongate
body.

2 16. The combination according to claim 14 wherein the edge is defined
by a projection from the circumferential surface.

2 17. The combination according to claim 14 wherein the edge is defined
by an undercut in the circumferential surface.

2 18. The combination according to claim 14 wherein the tensioning
4 element has a body with a diameter, the body having a first diameter portion and
a second diameter portion and the edge is defined at a juncture between the first
diameter portion and the second diameter portion.

2 19. The combination according to claim 14 wherein the tensioning element has a body and the body has an angled portion at which the edge is defined.

2 20. The combination according to claim 14 wherein the edge is defined by texturing the circumferential surface.

2 21. The combination according to claim 13 wherein the circumferential surface is defined on a body portion having a length with a diameter, a first end and a second end, and the diameter of the body portion increases between the 4 first end and the second end so that a portion of the wave pattern of thread spirally wrapped against the circumferential surface is limited against lengthwise shifting 6 between the first and second ends of the body portion.

2 22. The combination according to claim 13 wherein the tensioning element has a plurality of edges to which the thread abuts to maintain the controlled wave pattern.

23. The combination according to claim 13 wherein the tensioning
2 element comprises discrete portions which is bridged by the thread to maintain the
controlled wave pattern.

24. The combination according to claim 23 wherein the discrete portions
2 are spaced and configured so that thread in the controlled wave pattern is
unsupported by the tensioning element between the discrete portions.

25. The combination according to claim 13 further in combination with
2 at least one component for stitching using thread drawn from the supply by the
thread drawing assembly.

26. The combination according to claim 25 further in combination with
2 a support to which the wall structure is mounted.

27. The combination according to claim 14 wherein the tensioning
2 element has a plurality of edges to which the thread abuts to limit lengthwise
shifting of the thread spirally wrapped against the circumferential surface.

28. A method of drawing thread from a supply of the thread wrapped
2 around a bobbin, said method comprising the steps of:

4 providing a tensioning element with a body having a portion with a length
and a circumferential surface;

6 wrapping the thread against the circumferential surface so as to form a
controlled wave pattern of thread against the circumferential surface so that a
frictional resistance force is generated between the thread and circumferential
8 surface that resists drawing of thread off of the supply; and

10 exerting a tensioning force on the thread to cause the thread to be drawn
off of the bobbin.

29. A method of drawing thread from a supply of the thread wrapped
2 around a bobbin, said method comprising the steps of:

4 providing at least one tensioning element with a body with a circumferential
surface;

6 wrapping the thread against the circumferential surface so as to form a
controlled wave pattern of thread against the circumferential surface so that a
friction resistance force is generated between the thread and circumferential
8 surface that resists drawing of thread off of the supply; and

10 exerting a tensioning force on the thread to cause the thread to be drawn
 off of the bobbin.